

# Notice of Allowability

Application No.

09/865,597

Examiner

Greta L. Robinson

Applicant(s)

ABUGOV ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to an RCE and amendment filed February 23, 2007.
2. ☒ The allowed claim(s) is/are 1, 4, 7-15 and 17-24 (now renumbered as claims 1-19).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

- |  |  |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>20070607</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment  |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance                                    |
|  | 9. <input type="checkbox"/> Other _____.   |

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Chadwick A. Jackson registration no. 46495 on June 07, 2007.

2. The application has amended as follows:

1. (Currently Amended) A computer implemented method for determining positional relationships among objects represented in a database, the method comprising:

receiving a query including at least a first object in the database and a desired relationship between the first object and a second object in the database;

in response to receiving the query performing the steps of:

identifying, for the first object, tiles in a plurality of tiles defined in a spatial index in the database that intersect and are within the boundaries of the first object tiles in the plurality of tiles that intersect a boundary of the first object;

identifying, for the second object, tiles in the plurality of tiles that intersect and are within the boundaries of the second object and tiles in the plurality of tiles that intersect a boundary of the second object; and

providing the query to a primary filter operable to:

compare tiles of the first object with tiles of the second object to determine whether at least one tile of the first object intersects with at least one tile of the second object; and

determine whether the at least one tile of the second object with which the at least one tile of the first object intersects is a tile that intersects the second object while all of the boundary of the second object lies outside the tile;

if so, providing the first object to ~~the results~~ a result set of objects that satisfy the desired relationship,

otherwise, providing the first object and second object to a secondary filter operable to:

compare the second object with the first object; and

if the first object fulfills the positional relationship, include the first object in the result set of objects that satisfy the desired relationship;

otherwise, exclude the first object from the result set of objects that satisfy the desired relationship.

20. (Currently Amended) A computer program product for performing a process for determining positional relationships among objects represented in a database in a computer system, comprising:

a computer readable medium; and

computer program instructions, recorded on the computer readable medium, executable by a processor, for performing the steps of

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receiving a query including at least a first object in the database and a desired relationship between the first object and a second object in the database;

in response to receiving the query performing the steps of:

identifying, for the first object, tiles in a plurality of tiles defined in a spatial index in the database that intersect and are within the boundaries of the first object tiles in the plurality of tiles that intersect a boundary of the first object;

identifying, for the second object, tiles in the plurality of tiles that intersect and are within the boundaries of the second object and tiles in the plurality of tiles that intersect a boundary of the second object; and

providing the query to a primary filter operable to:

compare tiles of the first object with tiles of the second object to determine whether at least one tile of the first object intersects with at least one tile of the second object; and

determine whether the at least one tile of the second object with which the at least one tile of the first object intersects is a tile that intersects the second object while all of the boundary of the second object lies outside the tile;

if so, providing the first object to ~~the results~~ a result set of objects that satisfy the desired relationship,

otherwise, providing the first object and second object to a secondary filter operable to:

compare the second object with the first object; and

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if the first object fulfills the positional relationship, include the first object in the result set of objects that satisfy the desired relationship;

otherwise, exclude the first object from the result set of objects that satisfy the desired relationship.

21. (Currently Amended) A system for performing a process method for determining positional relationships among objects represented in a database, comprising:

a processor operable to execute computer program instructions; and

a memory operable to store computer program instructions executable by the processor, for performing the steps of:

receiving a query including at least a first object in the database and a desired relationship between the first object and a second object in the database;

in response to receiving the query performing the steps of:

identifying, for the first object, tiles in a plurality of tiles defined in a spatial index in the database that intersect and are within the boundaries of the first object tiles in the plurality of tiles that intersect a boundary of the first object;

identifying, for the second object, tiles in the plurality of tiles that intersect and are within the boundaries of the second object and tiles in the plurality of tiles that intersect a boundary of the second object; and

providing the query to a primary filter operable to:

compare tiles of the first object with tiles of the second object to determine whether at least one tile of the first object intersects with at least one tile of the second object; and

determine whether the at least one tile of the second object with which the at least one tile of the first object intersects is a tile that intersects the second object while all of the boundary of the second object lies outside the tile;

if so, providing the first object to ~~the results~~ a result set of objects that satisfy the desired relationship,

otherwise, providing the first object and second object to a secondary filter operable to:

compare the second object with the first object; and

if the first object fulfills the positional relationship, include the first object in the result set of objects that satisfy the desired relationship;

otherwise, exclude the first object from the result set of objects that satisfy the desired relationship.

3. The following is an examiner's statement of reasons for allowance:

The prior art of record fails to teach determining the boundary of object tiles as cited in independent claims 1, 20 and 21. Specifically the prior art of record does not teach the combination defining a plurality of tiles in a spatial index in a database, primary filter process for comparing tiles and secondary filter for comparing objects and

determining positional relationships of objects in a database as cited in the claims. The primary filter is a process operable to compare tiles of a first object with tiles of a second object to determine intersections and boundaries; while the secondary filter is a process that compares objects to determine a positional relationship. The prior art does not teach this process as cited in independent claim 1, 20 and 21.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greta L. Robinson whose telephone number is (571)272-4118. The examiner can normally be reached on M-F 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim T. Vo can be reached on (571)272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



GRETA ROBINSON  
PRIMARY EXAMINER

Greta Robinson  
Primary Examiner  
June 07, 2007